

REMARKS

Pursuant to the present amendment, claims 1, 10, 18 and 24 have been amended, and claims 2, 11, 19 and 25 have been canceled. Thus, claims 1, 3-10, 12-18, 20-24 and 26-28 are pending in the present application. No new matter has been introduced by way of the present amendment. Reconsideration of the present application is respectfully requested.

In the Office Actions, claims 1-4, 6, 10-12 and 14 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by Patel (U.S. Patent No. 6,584,369). Claims 7-9, 15-20, 22-26 and 28 were rejected under 35 U.S.C. § 103 as allegedly being obvious over Patel in view of Shanmugasundram (U.S. Patent Publication 2002/0193899). Claims 5, 13, 21 and 27 were rejected under 35 U.S.C. § 103 as allegedly being obvious in view of Patel, Shanmugasundram and Stoddard (U.S. Patent No. 6,587,744). Applicants respectfully traverse the Examiner's rejections.

As the Examiner well knows, an anticipating reference by definition must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). To the extent the Examiner relies on principles of inherency in making the anticipation rejections in the Office Action, inherency requires that the asserted proposition necessarily flow from the disclosure. *In re Oelrich*, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981); *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990); *Ex parte Skinner*, 2 U.S.P.Q.2d 1788, 1789 (Bd. Pat. App. & Int. 1987); *In re King*, 231 U.S.P.Q. 136, 138 (Fed. Cir. 1986). It is not enough that a reference could have, should have, or would have been used as the claimed invention. "The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Oelrich*, at 326, quoting *Hansgirg v. Kemmer*, 40 U.S.P.Q. 665, 667 (C.C.P.A. 1939); *In re Rijckaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed.

Cir. 1993), quoting *Oelrich*, at 326; see also *Skinner*, at 1789. “Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Skinner*, at 1789, citing *Oelrich*. Where anticipation is found through inherency, the Office’s burden of establishing *prima facie* anticipation includes the burden of providing “...some evidence or scientific reasoning to establish the reasonableness of the examiner’s belief that the functional limitation is an inherent characteristic of the prior art.” *Skinner* at 1789.

Moreover, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Health-*

care Corp., 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior art would have suggested to one of ordinary skill in the art that the process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

Applying these legal standards, it is respectfully submitted that all pending claims are in condition for immediate allowance. Pursuant to the present amendment, all independent claims have been amended to recite the affirmative steps of:

analyzing at least said enhanced metrology data to determine if said process tool is acceptable for processing said identified at least one wafer; and

if said process tool is determined to be acceptable, positioning said at least one wafer in said identified process tool and performing said process operation thereon.

As thus amended, it is respectfully submitted that all pending claims are allowable over the prior art of record.

As set forth in the specification, in one aspect, the present invention may be employed to obtain enhanced metrology data for an identified process tool wherein an identified wafer (or wafer lots depending on the claim) is to be processed. This enhanced metrology data is obtained for a process operation to be performed in the identified tool prior to processing the identified wafer in the tool. The inventive method disclosed in the present application further involves analyzing the enhanced metrology data to determine if the identified process tool is acceptable

for processing the identified wafer and, if the tool is determined to be acceptable, positioning the identified wafer in the identified process tool and performing the process operation on the tool. Of course, the Examiner will need to consult the language of each of the pending claims for the exact nature and details of the pending claims. However, it is respectfully submitted that the inventions defined by the pending claims are fundamentally different than the cited prior art.

The Examiner's primary reference is Patel. Patel is understood to be directed to a method and system for dispatching semiconductor lots to manufacturing equipment where the lots will be processed. Col. 1, ll. 48-52. Patel discloses that the dispatcher 16 takes the available lots 22 in the buffer 14 and dispatches each lot 22 to optimize the operation of the work cell 10. Col. 3, ll. 5-9. The dispatcher 16 bases the dispatch decisions on feedback data 24 from each machine 18 within the cell 10. The feedback data 24 includes machine metrics 26 from each machine 18 and downstream metric data 28. Col. 3, ll. 9-13. Machine metrics 26 include measurements from a particular machine 18 such as temperature, pressure, etc. Col. 3, ll. 19-22. Downstream data 28 may include data such as critical dimensions, product functionality, device errors, etc. Col. 3, ll. 22-25.

According to Patel, the work cell 10 employs a closed loop dispatch system to make dispatch decisions and uses feedback to change dispatch behavior based on the feedback information. Col. 3, ll. 26-33. This allows the work cell 10 to account for various disturbances that affect operations. Col. 3, ll. 33-34. Such disturbances include changes in the product mix in the buffer 14 and/or equipment drift. Patel notes that these disturbances may cause changes in product fabrication that may not affect a current lot being processed in a particular machine, but may significantly affect a later lot dispatched to the particular machine 18. Col. 3, ll. 42-46.

Patel goes on to note that the dispatch system disclosed therein can be operated such that no machines 18 are idle as long as there are lots to be processed. The system can also process low running lots 22 wherein the dispatcher tries to allocate lots 22 to machines 18 best suited (in a performance sense) to run the lots 22. Patel even notes that the dispatch system may soft dedicate machines 18, preferring to run a given type of low running lot 22 on a limited set of machines 18. Col. 3, ll. 47-59.

As thus understood, it is respectfully submitted that the inventions defined by the pending claims are fundamentally different from the methods disclosed in Patel. The Examiner contends that the “equipment disturbances” in Patel constitute the enhanced metrology data recited in the claims. Applicants respectfully disagree. As is clear from the discussion of Patel above, the disturbances referenced in Patel are simply not metrology data. In Patel, a disturbance is a conclusion reached based upon the feedback of data – it is not enhanced metrology data. For example, Patel notes that equipment drift is one example of a database. Certainly, reaching the conclusion that the equipment is drifting is not metrology data. Thus, Patel does not anticipate the pending claims for at least this reason.

Additionally, at no point does Patel disclose the aspect of the claimed invention wherein enhanced metrology data is obtained for an identified process tool prior to processing an identified wafer (or wafer lots) in the identified tool. As set forth in the specification, the invention is directed to obtaining more recent metrology data for the identified tool rather than simply relying on only historical data collected over an extended period of time for that tool. Using this methodology, better information is obtained regarding the performance capabilities and effectiveness of the process tool prior to processing the identified wafer or wafer lot through the identified process tool.

Patent is simply silent with respect to this aspect of the claimed invention. In Patel, wafers are dispatched and processed through the various machines 18. Feedback information is supplied to the dispatcher. However, at no point is it even remotely suggested that enhanced metrology data should be obtained from an identified process tool prior to processing an identified wafer (or wafer lot) in the identified process tool.

Patel also does not disclose the aspect of the presently claimed invention involving analyzing the enhanced metrology data to determine if the identified process tool is acceptable for processing the identified wafer (or wafer lot). As understood by the undersigned, Patel is simply directed to an improved dispatching system that is employed to route wafer lots through various process machines.

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are not anticipated by Patel. Moreover, all of the pending claims are not obvious in view of Patel or any other art of record. None of the other art of record cure the fundamental deficiencies described above with respect to Patel. Thus, even if Patel were combined with the prior art of record, such a combination would not disclose each and every limitation of the claimed invention. Accordingly, any such obviousness rejection would be legally improper.

Moreover, there is no suggestion in the art to modify the teachings of Patel so as to arrive at Applicants' claimed invention. A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. As described above, Patel is directed to a dispatch system that

employs feedback to detect disturbances and dispatch wafer lots accordingly. At no point is there any suggestion in Patel for the step of obtaining enhanced metrology data for an identified process tool prior to processing an identified wafer (or wafer lot) in the identified process tool. Such a detailed methodology is simply not disclosed in Patel. It is respectfully submitted that any attempt to assert that the invention defined by the pending claims is obvious in view of Patel, considered individually or in combination with the other prior art of record, constitutes an improper use of hindsight using Applicants' disclosure as a roadmap.

In view of the foregoing, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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